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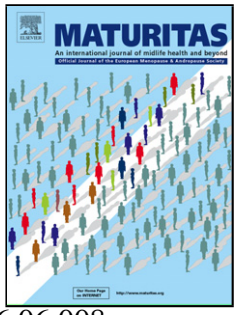

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Highlights

- The strong evolutionary conservation of model organisms used in ageing research allows lessons learnt from even simple single-celled yeast to be applied to studies of ageing in humans
- Core conserved biochemical pathways of ageing include insulin-like signalling and integration of nutrient and stress sensing through the mTOR kinase
- Removal of senescent cells in mice improves health in later life
- The genetic causes of premature ageing syndrome in humans suggest treatment regimes that may be applicable to the ageing population
- Conserved biochemical pathway of ageing in model organisms highlight drug targets for improvement of ageing outcomes

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Animal and human models to understand ageing

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Abstract

Human ageing is the gradual decline in organ and tissue function with increasing chronological time, leading eventually to loss of function and death. To study the processes involved over research-relevant timescales requires the use of accessible model systems that share significant similarities with humans. In this review, we assess the usefulness of various models, including unicellular yeasts, invertebrate worms and flies, mice and primates including humans, and highlight the benefits and possible drawbacks of each model system in its ability to illuminate human ageing mechanisms. We describe the strong evolutionary conservation of molecular pathways that govern cell responses to extracellular

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